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UNITED STATES DEPARTMENT OF AGRICULTURE,  
OFFICE OF THE SECRETARY.**FOOD CROPS MUST BE INCREASED.****War Demands and World Food Shortage Should be Met by American Farmers—Efficient Production Imperative—What Crops Should be Stressed and Where.**

The Secretary of Agriculture, D. F. Houston, on Saturday, April 7, issued the following statement:

The importance to the Nation of a generously adequate food supply for the coming year can not be overemphasized in view of the economic problems which may arise as a result of the entrance of the United States into the war. Every effort should be made to produce more crops than are needed for our own requirements. Many millions of people across the seas, as well as our own people, must rely in large part upon the products of our fields and ranges. This situation will continue to exist even though hostilities should end unexpectedly soon, since European production can not be restored immediately to its normal basis. Recognition of the fact that the world at large, as well as our own consumers, must rely more strongly on American farmers this year than ever before should encourage them to strive to the utmost to meet these urgent needs.

**Increase Yields of Staple Crops.**

It is obvious that the greatest and most important service that is required of our agriculture under existing conditions is an enlarged production of the staple food crops. Because of the shortage of such crops practically throughout the world there is no risk in the near future of excessive production, such as sometimes has resulted in unremunerative prices to producers. This is particularly true of the cereals and of peas, beans, cowpeas, soy beans, and buckwheat. In view of the world scarcity of food, there is hardly a possibility that the production of these crops by the farmers of the United States can be too great this year, and there is abundant reason to expect generous price returns for all available surplus.

The most effective step that may be taken to increase the production of these crops is to enlarge the acreage devoted to them in the regions where they are grown habitually. This expansion of acreage should be to the limit permitted by available good seed, labor, and equipment. The placing of too great emphasis on production in new regions is inadvisable, since the introduction into a farm operation of a crop not usually grown frequently involves practical difficulties not easily foreseen nor quickly surmountable.

Taking the winter-wheat territory as a whole, winter killing has occurred to an extent very much greater than usual. This obviously, if not compensated for in some way, will mean a material reduction in the supplies of our most important bread cereal. Where winter wheat has been damaged sufficiently to justify the abandonment of fields, it should by all means be replaced by spring-planted food crops, preferably small grains or corn. The acreage of winter wheat seeded last fall is estimated at 40,080,000, or only 2 per cent above that of the preceding year (39,203,000 acres), and about one-eighth more than the average for the preceding five-year period (35,724,000). The condition of this crop, as shown by the department in its report of April 7, is more than 25 per cent below the average condition April 1 for the past 10 years. This condition forecasts a production this year nearly 52,000,000 bushels less than that of 1916 and 243,000,000 bushels less than the crop of 1915.

Climatic requirements of spring wheat during the last few weeks of its growth render it a more risky crop than others to plant outside the areas in which its production has been proved to be successful, so that it is not recommended for regions where oats or corn will be more certain to produce satisfactory yields. In the northern spring-wheat States, however, where old ground has been reserved for flax, and seed wheat is available, flax ground may well be sown with spring wheat and new land broken for flax where such land is available. In the Pacific Northwest, where the seed supply of well-adapted varieties is adequate, a considerably increased acreage of spring wheat appears probable. The spring-wheat acreage of 1916 (17,956,000 acres) was more than 5 per cent less than that of 1915 (19,161,000 acres), and more than 4 per cent less than the preceding five-year average (18,799,000 acres).

**Good Seed Wheat Necessary.**

The minimum quality of seed grain that should be relied upon under existing conditions is a very difficult point to decide. In general, it is not wise to risk planting seed wheat showing less than 75 or 80 per cent germination, nor that weighing less than 50 pounds to the bushel. If the land is pre-

pared thoroughly and otherwise is suitable, the use of spring wheat weighing as low as 45 pounds per bushel, if it shows good germination, may be advisable where better seed is lacking.

**The Usefulness of Oats and Barley.**

If land intended for spring wheat can not be put into good condition early enough for seeding, oats or barley can be substituted to good advantage in the sections where these crops are known to do well. Barley can be relied on in the proved areas of Wisconsin, Minnesota, Iowa, the Dakotas, and Montana, while oats have a much wider range. The ease with which barley may be substituted directly for wheat in human food and its usefulness to replace wheat milling by-products as food in the production of the milk supply, renders its abundant production important. Barley, where it succeeds, yields a larger weight of feed per acre than any other small grain crop. With an abundance of oats and barley available, much closer milling of wheat than at present could be practiced, if necessary, without endangering the milk supply which constitutes so important an element in the dietary of consumers.

**Large Acreage of Rye Planted.**

The place of rye under present conditions is an important one. The crop this year should be harvested and utilized with more than the usual care. Considerable acreage is planted in some sections for plowing under in the spring for green manure. Where conditions are suitable part of this acreage might well be held for harvesting, and followed with a suitable summer or fall crop for plowing in later.

**Buckwheat for Late Planting.**

Buckwheat may be planted later than any similar crop, and often does well on old meadows or waste land that can be broken after the more exacting crops are planted. In some sections where experience has demonstrated that the cereals, except rye, can not be relied on, buckwheat is a crop of considerable importance. The acreage could well be increased, especially in por-



tions of New York, Pennsylvania and New England, where the crop now is grown to a considerable extent.

### Rice Gaining in Popularity.

Rice at present prices provides more food value for the money than most of the other cereals. Fuller appreciation of its value should stimulate production quickly in Louisiana, Texas, Arkansas, and California to an extent that would increase the total food supply greatly.

### Increased Acreage of Grain Sorghums Warranted.

The prices of the grain sorghums during the past season appear to warrant increase of acreage of these grains in the regions where they can succeed, as in western Kansas, Oklahoma, and northern Texas. This increase should be practically to the limit of the acreage that can be handled properly with the labor and facilities available. Grain sorghums may well be used in that area to replace winter wheat on fields abandoned because of winter injury. The grain sorghums are but little known to eastern farmers, but are assuming importance rapidly in the drier portions of the country where corn and the small grains are unreliable because of frequent insufficiency of moisture. In the past these grains have been used chiefly as poultry and stock feed, but they have possibilities also as human food.

### Flax for New Ground.

Though flax is not primarily a food crop, the cake remaining when oil is expressed from the seed constitutes an important element in the dairy food supply. Its increase use in this way would release other grain products for use as food. As a crop peculiarly adapted to newly broken land in the spring wheat States where it is chiefly grown, the acreage of flax should be increased to the greatest extent possible.

### Expand the Corn Acreage.

Corn is the leading food and feed crop of the United States in geographic range of production, acreage, and quantity of product. The vital importance of a large acreage of this crop properly cared for, therefore, is obvious. Because of the prices obtained for the last crop and the world demand for this grain, its profitableness to the American farmer during the approaching season is clear. The 105,954,000 acres planted to corn in 1916 yielded 2,583,000,000 bushels or more than 400,000,000 bushels less than the large crop of 1915—2,994,793,000 bushels—and considerably less than the five-year average—2,732,457,000 bushels. Conditions now warrant the planting of the largest acreage of this crop which it is possible to handle effectively.

Although fall is the proper time for breaking sod for corn, there are many unproductive and foul meadows and indifferent pastures in Illinois, Indiana, Ohio, and the Middle Atlantic and Northeastern States that under existing conditions can be broken now to advantage and planted to corn. The resulting reduction of hay and pasture would be more than replaced by the corn stover, ensilage, and grain produced.

Corn as a cultivated crop has been found well suited to replace summer-fallowing in portions of Washington, Idaho, Oregon, Wyoming, and Montana, the forage and grain produced not materially reducing the succeeding grain crop.

### Plant Early and Reduce Risk.

Earliness of maturity, other factors being equal, is advantageous in the case of practically all grain crops. Relatively early maturing varieties should be selected where possible, and the planting should be done at the earliest suitable date. With the small grains an advance of three or four days in stage of maturity frequently saves a crop from serious damage by rust. With corn a similar advantage is obtained by early maturity when severe droughts are encountered and when killing frosts occur toward the end of the season. Corn grown on the rich bottoms which constitute the best corn lands often is damaged by temporary overflow. If corn has an early start, however, it usually will attain a size which will make it possible to withstand overflows with less damage. Early plantings of corn if somewhat damaged by flood or frost can be replanted even a second or third time with profit, if seed of early maturing varieties is secured in advance of the time when needed.

### Cowpeas and Soy Beans Valuable for Food.

The usefulness of cowpeas and soy beans as human food has been recognized only recently in this country. Existing conditions warrant the planting of all the available seed of varieties known to do well in the several sections. The soy bean, in particular, has proved sufficiently resistant to cold in spring and to adverse weather during summer to warrant heavy planting, especially throughout the South. The value of the beans for oil production, as well as for human food, has become recognized so quickly and so generally during the past year that the crop has acquired a commercial standing far in excess of its previous status. While the commercial supply of seed late in March was estimated not to exceed 500,000 bushels, the quantity available on farms, where home-grown seed is held over in small lots for planting, undoubtedly will make possible a largely increased acreage.

### Field Bean Prices Should Stimulate Production.

The high food value of field beans and the shortage of supply due to the light yields of 1915 and 1916 render them of great importance in the regions to which they are adapted. This is especially the case in portions of the New England States, New York, Michigan, and California, where the chief supply has been grown for many years, and in sections of Idaho, Colorado, New Mexico, and other Western States where beans have attained importance recently. The seed supply, while high in price, is well distributed. In order that especially good crops may result, beans should be planted under such conditions of soil as regards character and preparation as will insure efficient use of the seed supply.

### Reserve Sufficient Hay, Forage, and Pasture Land.

A deficiency of hay and forage for the next winter would jeopardize the future meat and dairy supplies of the country and result in a shortage of roughage for military draft and saddle animals. In regions where dairying dominates, the full acreage of clover, alfalfa, and the grasses that is in productive condition should be maintained. Under the conditions prevailing in most dairying sections these crops can be carried with less man power than that required for tilled crops. The older, thinner, and less productive grass lands, however, frequently can be made to produce much larger yields of feed in corn than if left as they are in unproductive grass. The seeding down of small grain fields for next year's mowing should by no means be neglected, for the maintenance of effective rotations of crops will be found as important in the future as in the past.

For the Gulf States perhaps no forage crop of which the available seed supply is relatively abundant exceeds the velvet bean in potential value. This legume possesses also the ability to make a crop when planted relatively late.

### Potatoes and Vegetables.

Seed potatoes should be conserved by planting on the best lands available for them and planning for thorough tillage and protection of the crop against disease and insect pests. Potatoes can be grown most advantageously near the centers of population in the Northern States where transportation cost may be reduced to a minimum. This crop is capable of quick and large increase of production when conditions are favorable. There is, however, considerable risk of unprofitable production of potatoes when they are grown at long distances from the consuming markets, owing to their disproportionate weight and bulk of the product in comparison with the cereals.

Such vegetable crops as carrots, rutabaga, turnips, onions and cabbage are worthy of much more attention than they generally receive, especially in the eastern United States. All these crops are capable of large production on suitable land under intensive culture throughout the more densely populated portions of the country. The supply of seed is ample and their culture relatively simple. The holding of these vegetables for the winter food supply is relatively easy where suitable inexpensive pits, cellars, or lofts are prepared in time. The practicability of quickly drying vegetables for longer preservation was demonstrated on a large scale last year in western New York, where quantities were dried in the available apple evaporators and in quickly constructed dry kilns for export as army supplies. This was a repetition of the experience of the Civil War period, when desiccated vegetables assumed considerable importance in the army ration and the equipment required for their preparation proved the forerunner of our present fruit-drying equipment. Existing conditions warrant heavier planting than usual of staple winter



vegetables in the sections where canneries and fruit evaporators exist and probably in some sections where the provision of such facilities later in the season may be justified.

In the southern half of the country perhaps no crop has larger possibilities for quick increase of production of food for both men and animals than the sweet potato. Methods of handling and storing this product demonstrated and advocated by the Department workers for several years make possible much fuller utilization of this crop than has occurred generally in the past.

The peanut in many sections of the South also is capable of greatly enlarged production with little risk of over supply, as it is in demand for oil and peanut butter manufacture as well as for direct use as food both for man and hogs.

#### **Hold Seed for Replanting.**

While early planting is desirable, it is rarely advisable to risk the entire supply of seed in the first planting. This is particularly important with the tender, tilled crops, including corn, sorghum, beans, cowpeas, and soy beans. It is well to hold a fair proportion of seed in reserve against possible need, due to untimely frost or other destructive weather, at least until after the recognized danger period is passed. The availability of seed for immediate use when the need occurs frequently determines the practicability of replanting effectively. This is true also of reserve stocks of plants of tomatoes, sweet potatoes, early cabbage, and other vegetables usually transplanted.

#### **Possible Sweets for Domestic Production.**

Only about 20 per cent of the supply of sugar normally consumed in the United States is produced domestically, and this amount can not be increased appreciably during the coming season. Unless normal imports of sugar reach our shores, therefore a shortage of this food is inevitable. Supplemental sweets, however, may be produced more abundantly than in normal years and to some extent may take the place of sugar for the home use of farmers. Sirups from cane and sorghum constitute one of the most

important groups of supplemental sweets. Wherever these crops can be grown farmers may find it to their advantage to plant acreage sufficient to furnish materials for the home manufacture of at least a sufficient supply of sirup to meet family needs. In many parts of the country honey production may be increased by closer attention to bee culture.

#### **Increase Farm Production of Vegetables, Poultry, and Dairy Products.**

The high prices for foodstuffs that have prevailed during the last few months have stimulated interest in the increase of home supplies of vegetables, poultry, and dairy products on farms. This interest has been quickened most noticeably in the South, where for several years this department and the States through their extension workers have urged such an increase as necessary for economic reasons even under normal conditions. Other parts of the country have responded to these appeals, but emphasis on this feature should be continued by all agencies in position to operate effectively.

Through increased attention to poultry on farms it is possible to add quickly and materially to the food supply. Because of the importance of an increased supply of eggs, under present exigencies, farmers should not market hens of the egg breeds, such as the Leghorns, which are less than 3 years old, or of the larger breeds which are less than 2 years old. By the immediate preservation of eggs for home consumption through the use of water glass or limewater, larger supplies of fresh eggs may be made available for marketing later in the season, when production is less and prices higher. Every person who raises chickens, from the novice to the poultry husbandman, should see that infertile eggs are produced and all surplus marketed promptly so as to eliminate waste through spoilage.

#### **Increase Production off the Farms.**

When conditions render it feasible small flocks of poultry should be kept by families

in villages, towns, and especially in the suburbs of large cities. The need for this extension of poultry raising is particularly great where consumption exceeds production, as in the Northeastern States. Through utilization of table waste, scraps, and other refuse as poultry feed, much wholesome food in the form of eggs and poultry for home use may be produced at relatively low cost. Many families in villages and on the outskirts of cities also should consider the advisability of keeping a pig if sanitary regulations permit. In most cases, however, it will be profitable to keep a pig only when a sufficient surplus from the household and the garden is available to furnish a considerable portion of the pig's food.

Consumers living in villages and in the suburbs of cities do not appreciate sufficiently the possibility of adding materially to their food supply by utilizing suitable idle soil in yards, vacant lots, and unused outlying fields. The total contribution to the food supply of families and communities which can be brought about through such activities is great. Gardening is peculiarly an activity in which the family and the community may share with resultant mutual helpfulness and benefit.

The duty of the individual farmer at this time is to increase his production, particularly of food crops. If he has control of tillable land not in use, or money lying idle, or labor unemployed, he should extend his operations so as to employ those resources to the fullest extent. This does not mean that he should rob his land, waste his capital, or expend his labor fruitlessly, but that by wise planning and earnest effort he should turn out a greater quantity of food crops than ever before. He will not lose by it; and he will perform an important service in supporting his country in the task that lies before it. The agricultural sufficiency of a nation is not attained unless the units which compose it are efficient. Those agricultural workers who produce, conserve, and market wisely will help toward the achievement of national agricultural sufficiency, and thus will perform valuable service for the Nation.



# STOP FOOD-CROP WASTES BY IMPROVING METHODS.

## Secretary of Agriculture Urges Farmers to Adopt Precautions to Secure Maximum Return from Acreage Planted—Seed Selection, Seed Disinfection, Spraying, Control of Insects and Pests Important—Storing, Canning, Drying, or Preserving of Surplus Products a Patriotic Duty.

The Secretary of Agriculture, D. F. Houston, on March 27, issued the following statement:

"Both for economic and patriotic reasons the American farmer should strive this year for the highest standard of efficiency in the production and conservation of food. But production accomplished by wasteful methods does not make for efficiency, and careful thought, therefore, should be given to the steps that need to be taken.

"At this, the approach of the growing season, it is pertinent to consider steps which should be taken during the starting or the growing of crops to prevent or eliminate wastes. In the case of the great staple cereals, which constitute a large proportion of our food supply, conspicuous production wastes result from failure to give proper attention to the selection and safeguarding of seed for planting, the preparation of the land, and the care of the crop. For instance, only varieties known to be well adapted to the region where planted should be selected, so that in case of such a crop as corn the grain will not fail to mature properly in a normal season. The planting of seed that will not germinate often results in great loss of time, labor, and money which could have been avoided by testing the seed for germinability before planting.

"In some sections the damage to crops by destructive diseases and insects is the most conspicuous crop waste. Economically sound and efficient production necessitates protection of crops against these pests. Disinfecting dips for seed and sprays and spraying for growing crops now have been developed to a point where they afford for certain crops a form of insurance that farmers can not afford to neglect.

### Secure Maximum Returns from Seed.

"Under existing conditions every precaution should be taken (1) to reduce production wastes by testing seed sufficiently in advance to insure against the planting of dead seed; (2) to treat with disinfecting dips all seed subject to diseases that can be prevented, such as the smuts of wheat, barley, oats, and rye, the losses from which are estimated conservatively at \$50,000,000 to \$60,000,000 in the United States in the average year; (3) to prepare especially thoroughly for planting these vitally important cereal crops and to care for them as may be necessary during the season.

"If seed is of high quality but short in quantity, some reduction in the quantity used per acre sometimes can be made with profit if the soil is especially well prepared and the seeding done carefully. Under favorable conditions as good a stand of oats can be obtained, the specialists of the department have found, by drilling  $2\frac{1}{2}$  bushels per acre as by sowing 3 bushels broadcast, with resultant increase of yield per acre as well as increase of acreage planted.

"Where spring wheat is planted, and to some extent barley and the grain sorghums, varieties should be sown that do not shatter, especially in the drier districts. No grain should be allowed to become dead ripe before cutting, because of the tendency to shatter when in that condition. Most farmers probably will find it possible to locate and prevent important wastes if at the beginning of the season they will give the matter serious thought and undertake to correct such wasteful practices.

### Guard Against Potato Diseases.

"In the case of the northern staple vegetables, such as potatoes, cabbage, and onions, of which the supply is short as the result of unfavorable climatic conditions in 1916 in the commercially important producing districts, it is considered especially important to reduce the risk of waste due to the action of insects and diseases during the growing period. With the potato, the seed stocks of which are low, every precaution necessary to reduce the risk of disease damage, including the treatment of the seed potatoes for scab before planting and equipment for thorough spraying while the crop is growing, should be taken.

"A widespread outbreak of late blight throughout the important potato-producing districts (which, fortunately, rarely occurs except in restricted areas) might diminish potato production at the rate of 3,000,000 bushels a day during August and September if prolonged warm and rainy weather should occur. This disease can be prevented by spraying, and early preparation should be made to combat it vigorously. Potato diseases of a preventable character frequently reduce the crop by from 50,000,000 to 100,000,000 bushels. While not entirely preventable, they should be guarded against to the fullest extent possible.

"Sweet potato losses from black rot, foot rot, and other diseases in the field result mainly from failure to select and disinfect seed and to practice sanitation in the beds. Bean losses from anthracnose and other diseases can be prevented to a large extent by the use of disease-free seed. The obtaining of such seed should receive special attention this season.

### Disposal of Surplus—Prevention of Waste.

"Some of the most conspicuous crop wastes occur with fruits and vegetables, of which, in normal years, larger quantities usually are grown than the producers can market profitably. Frequently these losses are due indirectly to disease and insect injury, which lowers their market value without reducing their food value materially if they can be utilized promptly by drying, canning, or other preservative methods. Under existing conditions, every practicable step should be taken to protect these crops throughout the season and to utilize and preserve them as fully as possible when they have matured.

"To the extent that competent labor is available, either hired or in the family, fruits and vegetables which ordinarily it is inadvisable to attempt to conserve should be systematically saved for use by canning, drying, or preserving. These operations should not be delayed until late summer and autumn, and family gardens should be planned to supply ample quantities of early-maturing small fruits and vegetables for canning, drying, or preserving, as well as fresh products for the table. Because of the scarcity of tin plate and the high price of tin cans, it may be necessary in household preservation of food more extensively to pack fruit and vegetables in other containers. This situation may call for new methods of preserving or the improvement and extended use of old processes, such as drying.

"In the Southern States, approximately 50,000,000 bushels of sweet potatoes are produced annually, and it is estimated that at least 10,000,000 bushels of these are lost annually by decay. Frequently wholesale waste occurs at harvest time, not only of sweet potatoes, but of white potatoes and other underground food crops, through lack of proper storage facilities to safeguard the crop from destructive freezes at digging time. Early this season plans should be made and executed in the building of suitable farm storage houses or cellars. This usually can be done at relatively low cost if undertaken in time. In view of the experience of the past year, it would appear that surpluses of such vegetable crops as are capable of preservation by drying for soup stock, such as carrots, potatoes, celery, etc., could be preserved profitably for food use in regions where fruit evaporators which could be utilized for this purpose already exist. Surplus sweet corn, if cut at the proper stage, can be sun dried or oven dried, as in earlier years before systematic canning of corn was developed, and, in this way, be preserved for food use.

"Certain crops grown annually to a considerable extent for soil improvement or forage possess large food value if utilized properly. Among such crops are soy beans, cowpeas, peanuts, kafir and other grains sorghums, the food and oil producing value of which has not been recognized adequately until recently. Increased utilization of these for human food and oil production doubtless will be advisable.

"Under the conditions in which the country now finds itself, it is important, as has been pointed out, that everything practicable be done to increase the efficiency of agricultural activities during the coming season. I have called attention to a few of the steps that may be taken to this end. It is desirable that throughout the country farmers confer among themselves on these and other matters affecting the production of needed crops and that they consult freely with county agents, State agricultural agencies, and the Department of Agriculture."





